b. hybridizing the oligonucleotide to nucleic acid from the sample;

c. exposing the hybridized oligonucleotide to two or more wash temperatures, at least one of which is above the oligonucleotide's calculated T_m; and

d. determining the presence or absence of hybridized nucleic acid.

26. (Currently Three Times Amended) A method for discriminating between species of Shigella and E. coli or for discriminating among species of Shigella and E. coli in a sample containing organisms of one or more taxonomic groups comprising:

a. selecting an oligonucleotide having a sequence from a DNA or RNA operon, wherein the sequence differs by one or more bases from at least one of the operons from the two or more species being discriminated, and wherein the oligonucleotide discriminates between species after hybridization by the use of two or more wash temperatures at or above the oligonucleotide's calculated T_m or at the experimentally determined T_m;

b. hybridizing the oligonucleotide to nucleic acid from the sample;

c. exposing the hybridized oligonucleotide to two or more wash temperatures at or above the oligonucleotide's calculated T_m or at the experimentally determined T_m; and

d. determining the presence or absence of hybridizing nucleic acid,

wherein said oligonucleotide consists of the sequence of SEQ ID NO: 4 or wherein said oligonucleotide comprises a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2 and SEQ ID NO: 3.

28. (Currently Twice Amended) The method of claim 48, wherein a nucleic acid probe consisting of SEQ ID NO: 2 is used to discriminate between or among Shigella and Escherichia.

29. (Currently Twice Amended) The method of claim 48, wherein a nucleic acid probe consisting of SEQ ID NO: 3 is used to discriminate between or among Shigella and Escherichia.

46. (Currently Amended) A method as in claim 19 wherein the hybridized oligonucleotide is separated into at least two portions and each portion is exposed to a different wash temperature, at least one of which is above the oligonucleotide's calculated T_m.

47. (Currently Amended) A method as in claim 26 wherein the hybridized oligonucleotide is separated into at least two portions and each portion is exposed to a different wash temperature, at least one of which is above the oligonucleotide's calculated T_m.